

Using Maps for a National Marine Sanctuary Tour

Guiding Question

What is latitude and longitude and how can they be used to locate places on a map or a globe?

Discussion

This activity is designed as an introduction to where the national marine sanctuaries can be found in the United States and is targeted for students in grades 4-12. The focus of this activity is to link geography, use of maps and the development of mental maps (an individual's internalized representation of aspects of the Earth's surface) in a fun and engaging manner. By changing the content of this activity from national marine sanctuaries to other local points of interest, the concepts can be used to teach about a wide variety of geographic areas. This activity provides an excellent review of principles that engage students in how to use geography to read maps and locate specific national places of interest.

Materials

- 19 index cards (or squares of paper) of five different colors, in the following groups:

color 1 (yellow) = 4 cards
color 2 (blue) = 3 cards
color 3 (red) = 2 cards
color 4 (white) = 7 cards
color 5 (green) = 3 cards

- Teacher Guide for Sanctuary Tour

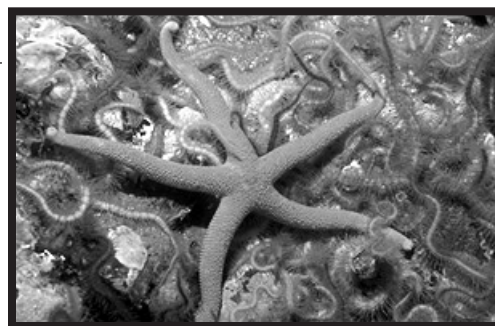
- Several wall maps—World, United States, North America, Pacific Ocean or Rim (large format atlases or classroom globes may also be useful)

- National Marine Sanctuary Sites information (for review, discussion, and follow-up of this activity, see Unit 1, page 16)

Procedure

1 Note that the first entry on the **Teacher Guide** is an approximate latitude/longitude location (47°N 92°W), and that the last entry is a place name (CHANNEL ISLANDS NMS). Beginning with the top of the list—47°N 92°W, write each latitude and longitude location/place on one of the nineteen cards. Use the color sequence listed in the **Teacher Guide**. On the back of each card, write the corresponding letter listed in the **Teacher Guide**. Have wall maps of the United States, North America, the World and Pacific Ocean (and/or globes and large-format atlases) scattered about the room, available for student use.

2 Place cards, with locations/place names facing up, on a table or desk. Hand a student the first card on the tour, which reads 47°N 92°W. State that this is the starting point of the "National Marine Sanctuaries Tour," and that each card, except this first one and the last one, includes BOTH a set of latitude and



longitude coordinates AND a place name.

Explain that these coordinates and place names do not match on a single card. However, one student has the place name which matches a latitude/longitude from someone else's card, AND a different person has the latitude/longitude coordinates which match a specific place name. Have eighteen other students each pick a card. If you have more than eighteen students, include other students as observers or as "free-lance guides" to help match locations with coordinates and to arrange students in the hoped-for loop. Alternatively, you may pair up students as needed to work with a single card. You can also add more location/place cards along the tour route from Duluth to Channel Islands NMS, e.g., other Great Lakes ports, U.S. Virgin Islands, Puerto Rico; additional Hawaiian or Alaskan places, but the "phrase" used in this activity to provide the "surprise" check for students would need to be replaced with another. Don't tell the students WHY there are different card colors or WHY there are letters on the back of each card; save that for later. The "phrase" developed after the students line up correctly is the surprise "check" on their work.

3 Tell students to try to arrange themselves in the proper tour order, by geographic location starting from Duluth, MN to Channel Islands, CA, by consulting the maps/atlas/globes around the room, and by questioning other students about their place names and locations. You might want to place the student with the first and last cards in specific "beginning and ending" spots in the room. These locations should also correspond to approximate locations on a map as viewed from above the room (in fact, by indicating a rough

latitude/longitude grid out on the floor of your classroom for the portion of the world in which you're working, you can sharpen their mental maps). Students will likely struggle a bit at first with this, and guidance should be offered, but as long as they know their task, they should begin to close the links of the tour "chain" one by one, as they match latitude and longitude coordinates and place names to shape a mental map of the sanctuary system.

4 When most students have found their matches (some may still be struggling), ask them to see if they are grouped with other students who have similar color cards. They should be. Give them time to rearrange, if necessary. Then ask if they can spell out a word with the letters on the backs of their like-colored cards. They should be able to do so, if they are in the proper tour order. Give them time to rearrange, if necessary. Ask each like-color group, in order from the first, to state its word. If the class National Marine Sanctuaries Tour is in order, the letters on back should spell out: "From Sea to Shining Sea" (19 letters, no spaces), an appropriate motto for the nation's far-flung string of important marine sanctuaries.

5 Ask students, in order from beginning to end of the tour, to give their latitude and longitude and place names (you may point these out on a world or North America map as they are mentioned, possibly with an overhead transparency map on which the locations have been



mapped in advance). With students still in the chain or loop, discuss the problems encountered with finding their links, and in constructing the route for this mental map tour of the sanctuaries.

6 For immediate follow-up, as a homework assignment, or for next-day discussion, ask students to think of one or more possible natural or cultural resources that is found in the national marine sanctuary listed on their card (e.g., whales, corals, ship wreck, etc.—these could be researched). Also, ask each student or group to think of one or more possible threats to that resource (over-harvest, pollution, treasure hunters, etc.—these could also be researched). This could easily lead to a broader discussion of why the marine sanctuaries are important to protect, why they're where they are, and what other marine resources need to be protected.

Extension Activity

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Make up another "tour" for Pacific Rim tectonic/volcanic activity, for West or East Coast U.S. or Great Lakes ports, for countries of the world or for world capitals/largest cities, or for any region—your state's significant places. Think of an expression which fits the number of letters and the flavor of the topic.

Acknowledgements

This activity is based on the linked-card "tour" method suggested by Tom Kropidlowski, who teaches science and geography at Seton Catholic Middle School, in Neenah, Wisconsin.

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TEACHER GUIDE FOR SANCTUARY TOUR CARDS

FRONT OF CARD	COLOR	LETTER ON BACK
47°N 92°W	Yellow	F
DULUTH 45°N 83°W	Yellow	R
THUNDER BAY NMS 48°N 60°W	Yellow	O
GULF OF ST. LAWRENCE 42°N 70°W	Yellow	M
STELLWAGEN BANK NMS 35°N 75°W	Blue	S
MONITOR NMS 31°N 80°W	Blue	E
GRAY'S REEF NMS 24°N 81°W	Blue	A
FLORIDA KEYS NMS 27°N 93°W	Red	T
FLOWER GARDEN BANKS NMS 9°N 79°W	Red	O
PANAMA CANAL 14°S 170°W	White	S
FAGATELE BAY NMS 21°N 157°W	White	H
HAWAIIAN ISLANDS HUMPBACK WHALE NMS 61°N 150°W	White	I
ANCHORAGE 48N 123°W	White	N
NORTHWEST STRAITS 48°N 124°W	White	I
OLYMPIC COAST NMS 38°N 123°W	White	N
CORDELL BANK NMS 37°N 122°W	White	G
GULF OF THE FARALLONES NMS 36°N 122°W	Green	S
MONTEREY BAY NMS 34°N 119°W	Green	E
CHANNEL ISLANDS NMS	Green	A